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NATIONAL ENERGY BOARD

REASONS FOR DECISION

In the Matter of an Application under
the National Energy Board Act

of

WESTCOAST TRANSMISSION COMPANY LIMITED

MAY 1979

REGULATORY AND INFORMATION

REGULATORY INFORMATION

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Ce rapport est publié
séparément dans les
deux langues officielles.



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2. Letter dated 9 June 1978 from BCPC to Westcoast Requesting Facilities
3. Westcoast Transmission Company Limited - Capacity Analysis - Junior-Sierra Project
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NOTE: This report is written in the British Imperial system of units with the Système International (SI) units shown in brackets. This is because the application was filed before the Board changed over to SI units.

NATIONAL ENERGY BOARD

IN THE MATTER OF an application by Westcoast
Transmission Company Limited for a certificate of public
convenience and necessity under Part III of the National Energy
Board Act.

(File No. 1555-W5-65)

HEARD at Vancouver, British Columbia on 18, 19 and 20 April 1979.

BEFORE:

C.G. Edge	Presiding Member
L.M. Thur	Member
R.F. Brooks	Member

APPEARANCES:

R.J. Gibbs, Q.C.)	Westcoast Transmission Company
Peter Steele)	Limited
Rodney A. Snow)	British Columbia Petroleum
		Corporation
David C. Duff)	British Columbia Hydro and
		Power Authority
H.R. Ward)	Columbia Gas Development of
		Canada Ltd.
Richard A. Pashelka)	Chevron Standard Limited
Wendell Samoil)	Esso Resources Canada Limited
Donald W. MacFarlane)	Mobil Oil Canada Limited
J.McL. Hendry)	National Energy Board
Sandra K. Fraser)	

THE APPLICATION

Westcoast Transmission Company Limited ("Westcoast" or "the Applicant"), a company within the meaning of the National Energy Board Act ("the Act"), owns and operates a pipeline for the transmission of natural gas produced in the Provinces of British Columbia and Alberta, the Yukon Territory, and the Northwest Territories for sale to customers in Canada and the United States of America.

By an application dated 17 August 1978, Westcoast applied to the National Energy Board ("the Board") for a certificate of public convenience and necessity under Part III of the Act to construct and operate pipeline gathering facilities and a sulphur plant addition that would connect natural gas producing fields in the Junior-Ekwan-Sierra-Sahtaneh areas of northeastern British Columbia to gas treatment facilities and then to Westcoast's mainline gas transmission system.

The proposed facilities consist of approximately 83 miles (134 km) of 12.75-inch (323.9 mm), 16-inch (406.4 mm) and 24-inch (609.6 mm) gathering pipelines (collectively referred to as the "Junior-Sierra pipeline") and an addition to an existing sulphur removal plant located near Fort Nelson, British Columbia. The facilities are shown on the map attached as Appendix 1 to this report and are described in detail in the application filed with the Board. The capital cost of the project is estimated at \$36.5 million.

Westcoast proposes to commence construction of the pipeline facilities in January 1980 with construction of the sulphur plant addition scheduled for March 1980 and to have them operational by April and October, respectively, of the same year.

The Board, by its Order No. GH-2-79 dated 22 February 1979, set down the application for hearing to commence on 18 April 1979. The hearing was concluded on 20 April 1979.

INTRODUCTION

In these Reasons, the Board discusses those matters which it considers to be the most significant with respect to this application. These are whether:

- (a) an adequate gas supply exists or will be available through future discoveries to warrant construction of the pipeline,
- (b) the additional gas supplies will contribute to the ability of Westcoast to meet present and future market requirements,
- (c) the proposed design is a prudent design taking into consideration such reasonable alternatives as may exist,
- (d) the costs of the line are reasonable and that the line can be adequately financed, and
- (e) proper regard has been given to environmental and socio-economic concerns.

These matters were addressed in the Applicant's submission and in evidence presented during the hearing.

SUPPLY OF GAS

Evidence submitted on the marketable gas reserves and potential in the Junior-Sierra area was as follows:

Comparison of Reserve Estimates

	<u>Reserves</u>		<u>Potential</u>	
	(Bcf)*	(10^6 m^3)	(Bcf)	(10^6 m^3)
Westcoast	1483.2	(42 015.8)	1200	(33 993.5)
British Columbia Petroleum Corporation	1541.9	(43 441.6)	325	(11 030.13)
Producers**	1472.5	(41 491.8)	735-765***	(20 718.6-21 568.5)

That there is a high level of exploration activity in the area is shown by recent new discoveries and proposed future exploration plans by producers. The Applicant and intervenors expressed optimism about ideal geological conditions in the area for new gas reserves. Intervenors expressed the opinion that the proposed facilities would be an incentive for further exploration and development.

* Figures based on either 14.73 or 14.65 psia pressure base.

** Producer figures are the combined Mobil, Esso and Chevron estimates for their land holdings and adjacent areas.

*** Chevron and Esso submitted estimates of ultimate potential whereas all other submittors submitted estimates of additional potential

In forecasting its deliverability, Westcoast took into account current marketable gas reserves of 1483.2 Bcf ($42.03 \times 10^9 \text{ m}^3$) and anticipated reserves additions for the area. The forecast showed sales gas throughput peaking at 80 Bcf ($227 \times 10^9 \text{ m}^3$) in 1986.

On the basis of available well data, the Board has independently estimated the established reserves for the Junior-Sierra project to be 1120.9 Bcf ($32 \times 10^9 \text{ m}^3$). The primary reason for the lower Board reserve figure is the Board's use of the less optimistic volumetric analysis of the Sierra main pool.

The Board is optimistic about the potential for new gas discoveries in the area and is of the view that an additional 1100 Bcf ($30 \times 10^9 \text{ m}^3$) potential exists.

Board studies indicate that the proved reserves in the Sierra and Sahtaneh fields can meet full contract demand for approximately seven years after start-up. Proved reserves in Kyklo are only capable of meeting the first year start-up volume. Ekwan reserves are capable of meeting two years of Westcoast's projected supply. The Junior area can meet three years of the illustrative schedule and the Gunnel, Sextet and Elleh wells are capable of meeting only one year of projected requirements. However, in view of the potential of the area, the high level of exploration and the drilling success ratio in

this area, the Board has confidence that the Applicant's illustrated deliverability schedule can be met.

The Board concurs with the view of producers that the proposed facilities will encourage further exploration and development in the area.

GAS REQUIREMENTS

Westcoast stated that it expected to operate at significantly higher load factor levels in 1979 and onwards for the combined domestic and export markets. Westcoast's forecast of annual gas requirements for the British Columbia market projects a 3.5 percent rate of growth for natural gas demand in the Province.

As a result of the development of storage capacity in the United States and offline sales to Pacific Interstate Gas and Southwest Gas, Westcoast anticipated an average load factor of 85 percent on exports on a long term basis compared with approximately 73 percent in 1978.

Westcoast asserted that considering reductions in deliverability due to diversity effects, it needed Junior-Sierra reserves to meet peak day contractual obligations and the higher annual system load.

The Board is satisfied that the connection of these new gas reserves will enhance the ability of Westcoast to meet market requirements.

FACILITIES

In a letter dated 9 June 1978, which is shown as Appendix 2 to this report, British Columbia Petroleum Corporation ("BCPC") requested Westcoast to apply to the Board for a certificate to construct pipeline facilities to service the Junior-Ekwan-Sierra-Sahtaneh gas which has been developed in the Fort Nelson area.

Cost

The estimated capital cost of the proposed facilities is summarized as follows:

<u>Ekwan Pipeline</u>	(<u>\$000</u>)
24.8 miles 16-inch O.D. (39.6 km 406.4 mm O.D.) sour gas gathering pipeline	\$ 7,749
<u>Junior Pipeline</u>	
8.3 miles 12.75-inch O.D. (13.3 km 323.9 mm O.D.) sour gas gathering pipeline	2,304
<u>Sierra-Sahtaneh Pipeline</u>	
11.5 miles 16-inch O.D. (18.4 km 406.4 mm O.D.) sour gas gathering pipeline	3,787
<u>Sahtaneh Pipeline</u>	
38.9 miles 24-inch O.D. (62.3 km 609.6 mm O.D.) sour gas gathering pipeline	20,374
<u>Sulphur Plant Addition</u>	
additional sulphur recovery facilities	<u>2,255</u>
Total cost of facilities	<u>\$36,469</u>

Financing

Westcoast stated that these facilities would be financed from funds generated from its accumulated retained earnings, interim bank borrowing, first mortgage bonds, unsecured debentures and preferred shares.

BCPC agreed that the costs related to the operation of the proposed facilities inclusive of a return on Westcoast's investment and the amortization of the capital expenditure would be allowable costs for Westcoast under the BCPC/Westcoast agreement.

The Board is satisfied that the facilities can be financed.

Routing

The proposed Junior-Ekwan-Sierra-Sahtaneh gathering system would be an addition to the Fort Nelson Gathering System and would connect to the Fort Nelson Gas Treating Plant (see Appendix 1). A Crown Grant for the right-of-way will be granted when the facilities are completed and the appropriate legal survey submitted. The right-of-way is located exclusively in Provincial Crown lands in the northeastern area of British Columbia and a one mile wide reserve has been obtained.

The Applicant stated that the routing of the proposed pipeline was chosen having regard to the environmental impact, apparent geological trend of the gas fields, location of Westcoast's existing pipeline facilities and the total mileage required.

Design

Several alternative pipe sizes were considered by Westcoast. The system chosen by the Applicant, although not resulting in the lowest 10 year average cost of service, was considered to be preferable as it provided the greatest reliability and security of supply.

The Applicant submitted a graph showing the capability of the Yoyo pipeline system in relation to various forecast throughput scenarios (see Appendix 3).

The Board probed the extent to which the existing Yoyo pipeline system, with modifications, could transport the projected gas volumes. Such modifications could include the use of available horsepower at Booster Station No. 12, a connecting pipeline between the Clarke Lake and Yoyo systems, and field compression at the Yoyo-Kotcho-Sierra junction.

The Board agrees with Westcoast and BCPC that a new gathering line in the area will provide diversity and/or security of supply. If a larger part of the gas were transported only through the single Yoyo pipeline, a break in the Yoyo line would result in more than half of the volume of gas transported through Westcoast's mainline being lost for an

extended period of time. In addition, the spare capacity in the existing Yoyo system may be needed for future transportation of trend gas from areas north of the Junior-Sierra project area. Beyond that, considering normal operating efficiency, the modifications to the Yoyo system would not provide capacity to handle all of the forecasted Junior-Sierra volumes.

The Board is of the view that the design of the facilities, including the size of pipe, and the general location are to be in accordance with good engineering practice based on the projected fifth year flow.

ENVIRONMENTAL ASPECTS

The Applicant submitted an environmental impact assessment report for the proposed Junior-Sierra pipeline project. The report consisted of a description of the environment including the surficial geology, slope stability, watercourse and stream biology, vegetation, wildlife and land use along the pipeline route, and an assessment of the impact of the pipeline on the environment. The assessment report included Westcoast's environmental consultants' recommendations for practices and procedures to mitigate or minimize potential adverse impact on the environment.

Westcoast undertook to implement the recommendations made by its environmental consultants and to direct its contractors, employees, servants and agents to observe them to the maximum extent possible. In addition, construction procedures would also be subject to the constraints and contingency plans presented in the environmental section of the construction contract documents. These constraints and contingency plans were contained in Exhibit 11, Volume III (Part 2) of the application which forms part of Westcoast's contract with its contractors.

The Board concludes that the environmental impact of the proposed pipeline will be minimal provided the policies, practices and procedures included in the reports and recommendations of the environmental consultants of Westcoast

or as adduced in evidence before the Board, are implemented. The Applicant undertook to implement these environmental policies, practices and procedures and the Board considers Westcoast bound by that undertaking.

REGIONAL SOCIO-ECONOMIC ASPECTS

Westcoast has provided the Board with a regional socio-economic impact assessment study which includes policies and measures to enhance beneficial aspects and/or mitigate adverse impacts attributable to the construction and operation of the proposed facilities.

Westcoast served copies of the above material on a number of local and regional groups. Copies were served, among others, on: the Union of British Columbia Indian Chiefs; local Bands in Fort Nelson and Prophet River; the Métis Association of British Columbia; the Peace River-Liard Regional District; and various organizations in Fort Nelson (such as the Chamber of Commerce and the Mayor of Fort Nelson). The Board notes that no interventions by any party or interest group were forthcoming on matters of regional socio-economic impact assessment.

Trapping is the only activity which was identified by Westcoast as an area of concern. The proposed project would traverse some seven registered trapping territories of which four are licenced to native trappers. However, Westcoast indicated that with the policies and measures it would apply, the impact of the project on trapping should be minimal. Westcoast's policies and measures include, firstly, notifying trappers of the scheduling of the project as soon as possible

so as to permit them to make any adjustments in their trapping that might be warranted or required, and secondly, taking steps to avoid interference with trapping on the part of pipeline construction workers.

The project's major contributions to the region, on the other hand, could rest in providing local employment opportunities as well as opportunities for local businesses. However, Westcoast indicated that, on such a short duration project, benefits from either of the above would not be of any great significance despite the steps it has taken to achieve such benefits. Westcoast assessed that the economic impact of the proposed project on the Fort Nelson region itself would be very small.

The Board expects Westcoast to endeavour to make reasonable efforts to avoid interference with or damage to traplines. The Board also expects Westcoast to file, following completion of construction, a status report of any claims pertaining to traplines.

Furthermore, the Board expects Westcoast to file, following completion of construction, a brief report outlining the regional socio-economic impacts related to the construction of the proposed facilities. Such report is to detail the levels of local employment related to the project, the extent of local business involvement and any other significant impact of an economic or social character.

CANADIAN CONTENT

Westcoast estimated that the Canadian content of the Junior-Sierra pipeline would be 93 percent while the Canadian content of the sulphur plant addition would be 91 percent.

The Applicant indicated that there could possibly be difficulty in obtaining the required pipe in Canada because of a current strike at the plant of one pipe maker. The Applicant undertook to notify the Board before placing any orders for pipe outside of Canada.

The Board is satisfied with the Canadian content of the project.

The Board expects Westcoast to file a report with the Board covering both the pipeline and the sulphur plant addition, after leave to open has been granted, summarizing the percentage of Canadian content achieved and pointing out significant variations from its estimates as adduced in evidence before the Board, and the reasons therefor.

DISPOSITION

The Board has given careful consideration to the application and the information filed in support of it, together with the evidence and all representations made at the hearing. The Board has taken into account all matters which to it appear to be relevant. The Board notes that there were no opposing interventions to Westcoast's application.

The Board finds that the connection of new gas, by means of the Junior-Sierra pipeline, will enhance the gas supply available to Westcoast to meet current and long-term market demand.

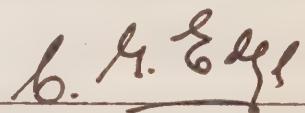
The availability of gas to the proposed additional pipeline facilities is insufficient, in terms of proven reserves and deliverability, to justify without qualification the investment of the required capital. However, taking into account the potential of the area, the Board is satisfied that the facilities will stimulate exploration and development activity to establish further reserves.

The Board agrees with the concept of separate Yoyo and Junior-Sierra systems to provide security of supply and accepts the proposed line sizing.

The Board finds the cost of the facilities to be reasonable and is satisfied with both the Canadian content and the proposed financing of the pipeline.

The Board finds that the environmental and regional socio-economic impacts would be minimal.

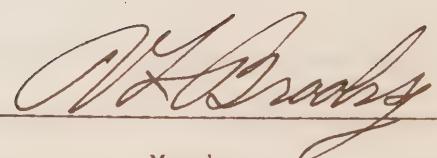
Having had regard to the foregoing considerations, conclusions, and findings, the Board is satisfied that the facilities which are the subject of this application are and will be required by the present and future public convenience and necessity and accordingly is prepared, subject to the approval of the Governor in Council, to issue a certificate upon the terms and conditions set out in Appendix 4 to this report.



Presiding Member

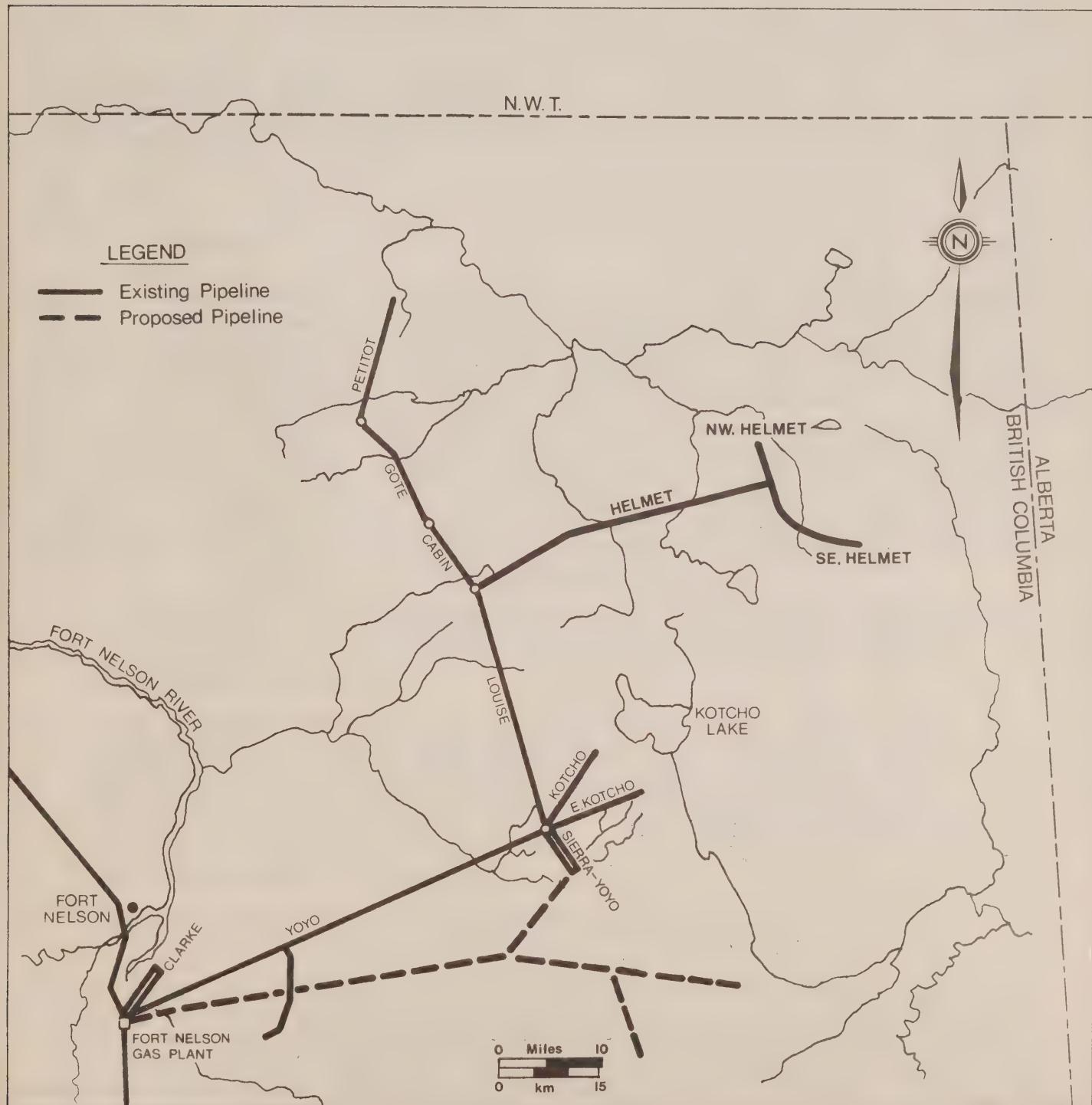


Member



Member

WESTCOAST TRANSMISSION COMPANY LIMITED
PROPOSED JUNIOR-SIERRA PIPELINE
(FORT NELSON GATHERING SYSTEM)



BRITISH COLUMBIA
PETROLEUM CORPORATION

6th Floor, 1199 West Hastings Street
Vancouver, B.C., V6E 3T5 • Tel. 685-0411, Telex 0454530

June 9, 1978

Mr. A.J. Green
Vice President, Supply and Sales
Westcoast Transmission Company Limited
1333 West Georgia Street
Vancouver, B.C.
V6E 3K9

Dear Mr. Green:

The British Columbia Petroleum Corporation herein requests Westcoast Transmission Company Limited to make application to the National Energy Board for a Class A licence required for the construction of pipeline facilities to service the Junior-Ekwan-Sierra-Sahtaneh gas pools which have been developed in the Fort Nelson area. It would be our objective to have the required facilities in place by the close of the 1978-79 winter construction season. On the assumption that an application can be prepared by Westcoast Transmission Company Limited in sufficient time to allow the NEB to set a date for a hearing and furthermore assuming that approval is granted, we would anticipate informing the producing companies of the above noted schedule. Attached for your information are:

1. A map showing the suggested route of the proposed pipeline facilities. The location of the pipeline has been chosen with a view to ensuring the gas fields in question can be adequately serviced.
2. A data sheet outlining three delivery points, which were previously discussed with Westcoast, and additional tentative tap locations on the proposed system. In addition, we have indicated the anticipated raw gas volumes to be attached to this pipeline system. The volumes are based on a rate of take of 1 million for each 1.575 Bcf reserves we see developed to date.
3. Gas analyses that have been supplied by various producers from the areas to be serviced by the pipeline.

We would anticipate that the total length of the pipeline, which we assume will be of varying diameters, will be in the order of 145 kilometers. We have requested that the producing companies confirm the delivery points which are noted in the attachment. We will, of course, advise you immediately if there are any changes. Please note that we have estimated the raw gas volumes for each delivery point based on a reserve-type formula. It is conceivable and quite probable

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Mr. A.J. Green

- 2 -

June 9, 1978

that the Junior and Ekwan areas can grow substantially in terms of new reserves, since these areas are only now being explored by the producers. We would request that Westcoast consider designing the facilities, which would service the Junior and Ekwan areas, to be capable of handling future production and deliveries of gas higher than those being shown on the table. For example, the Junior area could be capable of providing 30-50 MMcf/d of raw gas and the Ekwan area in the order of 75 MMcf/d of raw gas. The volumes shown for Sierra-Sahtaneh incorporate the latest information obtained from Mobil as a result of their recent drilling program. The volume shown for Sierra-Sahtaneh includes existing contracted reserves as well as new additions, and therefore should not be mistaken as being an incremental volume to the existing contract. The initial volume expected from Mobil will be 290 MMcf/d of raw gas. The remaining 33.4 MMcf/d (323.4-290) would represent potential as yet undeveloped.

With respect to the South Clarke Lake tap location at 28-J/94-J-9, we have included this for your consideration as I can recollect that at the time the recently completed South Clarke Lake pipeline was being designed, some consideration was given to the possibility of offloading all or part of this gas supply into the proposed pipeline now being considered.

We defer to Westcoast's knowledge of the system to determine the volume of gas that will be taken through the new pipeline facility and that volume which will be taken through the existing Sierra-Yoyo pipeline facilities.

We have discussed this proposed pipeline with all producers concerned and we have recently made contract proposals. We anticipate no difficulty in signing gas purchase contracts with the various producers involved. These contracts will be forwarded to Westcoast in the immediate future.

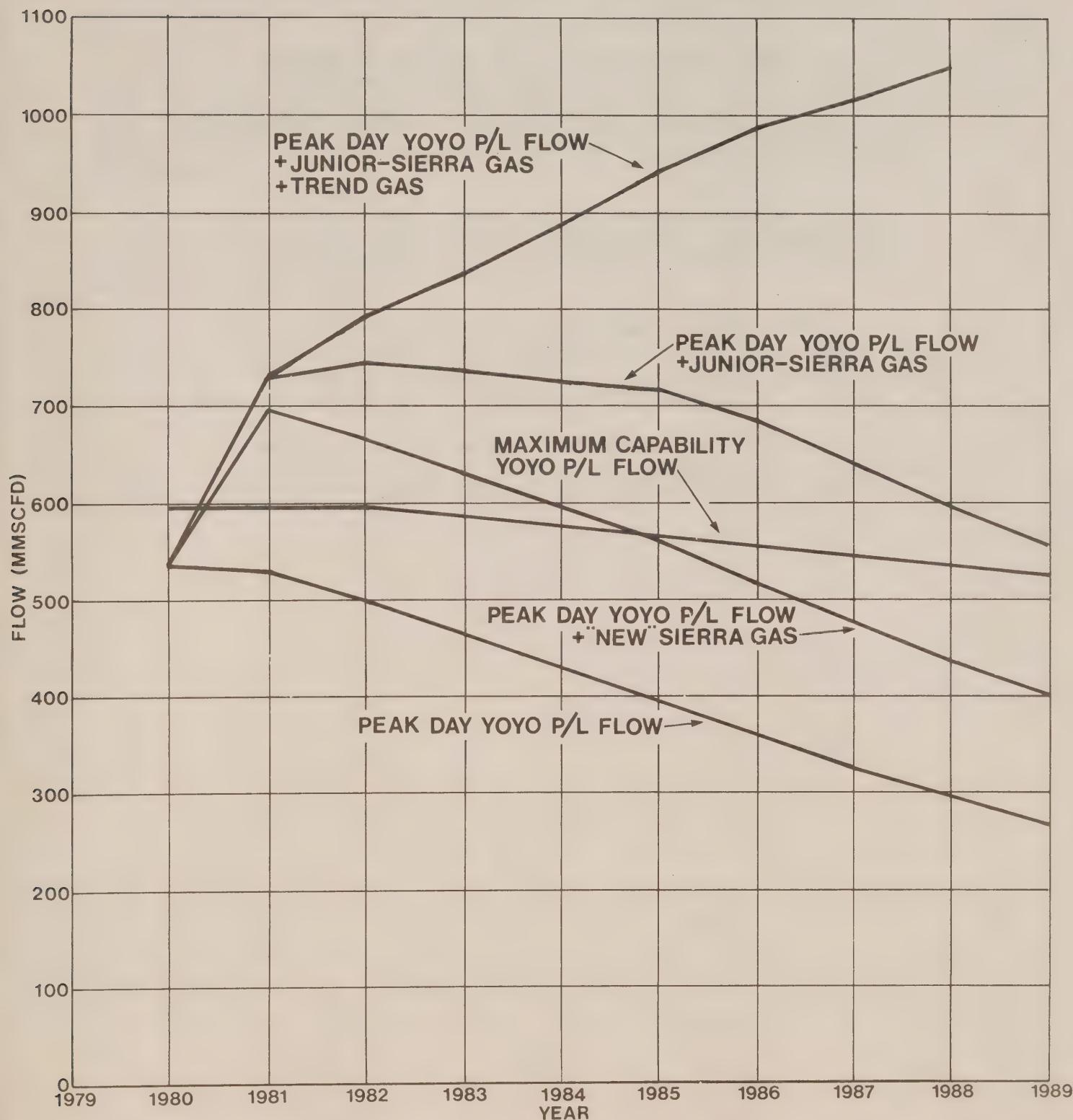
In accordance with our agreement of November 13, 1973, Westcoast would be entitled to include the capital cost of the proposed facilities in the rate base, and the operating cost and amortization of the capital expenditures would be included in the cost of service. The British Columbia Petroleum Corporation will be pleased to discuss the availability of further information which Westcoast may require to make the necessary application. The Corporation would appreciate receiving the preliminary design and estimated cost for this facility as soon as possible. Your cooperation in this venture is sincerely appreciated.

Yours very truly,

D.W. Rawlyk

Manager Natural Gas Division

WESTCOAST TRANSMISSION COMPANY LIMITED
CAPACITY ANALYSIS
JUNIOR-SIERRA PROJECT



TERMS AND CONDITIONS

1. The additional pipeline to be constructed pursuant to this certificate shall be the property of and shall be operated by Westcoast.

2. (1) Westcoast shall cause the additional pipeline, in respect of which this certificate is issued, to be designed, manufactured, located, constructed and installed in accordance with those specifications, drawings and other design data set forth in the application, and that may otherwise be filed with the Board.

(2) Westcoast shall cause no variation in the specifications, drawings, other design data, and requirements described in subcondition (1) to be made without the prior approval of the Board.

3. Westcoast shall cause the construction and installation of the additional pipeline to be completed on or before the 1st day of December, 1980, unless upon application by Westcoast a later day is fixed by the Board.

4. Westcoast shall cause no changes to be made to the environmental policies, practices and procedures as adduced in evidence before the Board without the prior approval of the Board.

